R^2, R^3, R^4, R^5, R^6, R^7, R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

E = NR^7, D = S, and G = OR^8.

In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^2, R^3, R^4, R^5, R^6, R^7, R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

E = NR^7, D = O and G = NR^7R^8.

In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^2, R^3, R^4, R^5, R^6, R^7, R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

E = NR^7, D = NR^8 and G = NR^7R^8.

In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^2, R^3, R^4, R^5, R^6, R^7, R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

$E = NR^7$, $D = CR^7R^8$ and $G = NR^7R^8$.

In another sub-embodiment, a structure of the formula (XVII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^2, R^3, R^4, R^5, R^6, R^7, R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

$E = NR^7$, D = S and $G = NR^7R^8$.

In a sub-embodiment, a structure of the formula (XVIII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R_1 and R_2, R_2 and R_3, R_3 and R_4, R_4 and R_5 and R_5 and R_6 can also each be comprised of one or two CR_7R_8 groups, connected by a tether, selected independently from groups that include CR_7R_8, $CR_7R_8CR_7R_8$, $CR_7{=}CR_8$, CR_7R_8O and $CR_7R_8NR_7$;

The dotted line indicates the presence of either a single or double bond, wherein the presence of a single bond, the valences are completed by hydrogens;

G is OR^7.

In another sub-embodiment, a structure of the formula (XVIII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R_1 and R_2, R_2 and R_3, R_3 and R_4, R_4 and R_5 and R_5 and R_6 can also each be comprised of one or two CR_7R_8 groups, connected by a tether, selected

independently from groups that include CR_7R_8, $CR_7R_8CR_7R_8$, $CR_7{=}CR_8$, CR_7R_8O and $CR_7R_8NR_7$;

The dotted line indicates the presence of either a single or double bond, wherein the presence of a single bond, the valences are completed by hydrogens;

G is NR^7R^8.

In another sub-embodiment, a structure of the formula (XVIII) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} can also each be comprised of one or two CR_7R_8 groups, connected by a tether, selected independently from groups that include CR_7R_8, $CR_7R_8CR_7R_8$, $CR_7{=}CR_8$, CR_7R_8O and $CR_7R_8NR_7$;

The dotted line indicates the presence of either a single or double bond, wherein the presence of a single bond, the valences are completed by hydrogens;

G is SR^7.

In a sub-embodiment, a structure of the formula (XIX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5, and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

B and M are selected from the groups that include CR^7R^8, O, S or NR^7; and

A is selected from the groups that include O, NR^7 or S.

In another sub-embodiment, a structure of the formula (XIX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

R_1 and R_2, R_2 and R_3, R_3 and R_4, R_4 and R_5 and R_5 and R_6 can also each be comprised of one or two CR_7R_8 groups, connected by a tether, selected

independently from groups that include CR_7R_8, $CR_7R_8CR_7R_8$, $CR_7{=}CR_8$, CR_7R_8O and $CR_7R_8NR_7$.

B and M are selected from the groups that include CR^7R^8, O, S or NR^7;

A is selected from the groups that include O, NR^7 or S.

In another sub-embodiment, a structure of the formula (XIX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R_1 and R_2, R_2 and R_3, R_3 and R_4, R_4 and R_5 and R_5 and R_6 can also each be comprised of one or two CR_7R_8 groups, connected by a tether, selected independently from groups that include CR_7R_8, $CR_7R_8CR_7R_8$, $CR_7{=}CR_8$, CR_7R_8O and $CR_7R_8NR_7$; and

M = O, B = O and A = O.

In another sub-embodiment, a structure of the formula (XIX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide,

a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

R_1 and R_2, R_2 and R_3, R_3 and R_4, R_4 and R_5 and R_5 and R_6 can also each be comprised of one or two CR_7R_8 groups, connected by a tether, selected independently from groups that include CR_7R_8, $CR_7R_8CR_7R_8$, $CR_7{=}CR_8$, CR_7R_8O and $CR_7R_8NR_7$.

M = O, B = NR^8 and A = O.

In another sub-embodiment, a structure of the formula (XIX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected

independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$; and

M = O, B = CR^7R^8, and A = O.

In another sub-embodiment, a structure of the formula (XIX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$.

M = O, B = S and A = O.

In another sub-embodiment, a structure of the formula (XIX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$; and

M = O, B = O and A = NR^7.

In another sub-embodiment, a structure of the formula (XIX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

M = O, B = NR^8 and A = NR^7.

In another sub-embodiment, a structure of the formula (XIX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R_1 and R_2, R_2 and R_3, R_3 and R_4, R_4 and R_5 and R_5 and R_6 can also each be comprised of one or two CR_7R_8 groups, connected by a tether, selected independently from groups that include CR_7R_8, $CR_7R_8CR_7R_8$, $CR_7{=}CR_8$, CR_7R_8O and $CR_7R_8NR_7$;

M = O, B = CR^7R^8 and A = NR^7.

In another sub-embodiment, a structure of the formula (XIX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl,

sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

M = O, B = S and A = NR^7.

In another sub-embodiment, a structure of the formula (XIX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

M = CR^7R^8, B = O and A = O.

In another sub-embodiment, a structure of the formula (XIX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

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M = CR^7R^8, B = NR^8 and A = O.

In another sub-embodiment, a structure of the formula (XIX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

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carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

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R^2, R^3, R^4, R^5, R^6, R^7, R^8 are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

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sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

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M = S, B = S and A = NR^7.

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R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide,

a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

M = NR^7, B = CR^7R^8 and A = O.

In another sub-embodiment, a structure of the formula (XIX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected

independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7=CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

M = NR^7, B = S, and A = O.

In another sub-embodiment, a structure of the formula (XIX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7=CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

M = NR^7, B = O and A = NR^7.

In another sub-embodiment, a structure of the formula (XIX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

M = NR^7, B = NR^8 and A = NR^7.

In another sub-embodiment, a structure of the formula (XIX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

$M = NR^7$, $B = CR^7R^8$ and $A = NR^7$.

In another sub-embodiment, a structure of the formula (XIX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug is defined as follows:

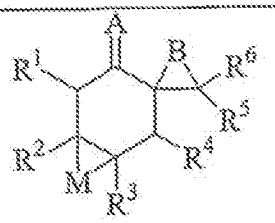
R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

$M = NR^7$, $B = S$ and $A = NR^7$.

In a particular embodiment of the present invention, the compounds of the formula (XIX) are the following species:



(XIX)

A	B	M	R^1	R^2	R^3	R^4	R^5	R^6
O	O	O	Me	H	H	H	Me	Me
O	O	O	*i*-Pr	H	H	H	Me	Me
O	O	O	Ph	H	H	H	Me	Me
O	O	O	Me	Me	H	H	Me	Me
O	O	O	*i*-Pr	Me	H	H	Me	Me
O	O	O	Ph	Me	H	H	Me	Me
O	O	O	Me	H	Me	H	Me	Me
O	O	O	*i*-Pr	H	Me	H	Me	Me
O	O	O	Ph	H	Me	H	Me	Me
O	O	O	Me	H	H	Me	Me	Me
O	O	O	*i*-Pr	H	H	Me	Me	Me
O	O	O	Ph	H	H	Me	Me	Me
O	O	O	Me	H	CH_2Ph	H	Me	Me
O	O	O	*i*-Pr	H	CH_2Ph	H	Me	Me
O	O	O	Ph	H	CH_2Ph	H	Me	Me
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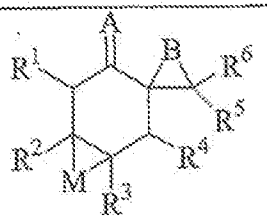
O	CH_2	O	*i*-Pr	H	H	H	Me	Me



(XIX)

A	B	M	R^1	R^2	R^3	R^4	R^5	R^6
O	CH_2	O	Ph	H	H	H	Me	Me
O	CH_2	O	Me	Me	H	H	Me	Me
O	CH_2	O	*i*-Pr	Me	H	H	Me	Me
O	CH_2	O	Ph	Me	H	H	Me	Me
O	CH_2	O	Me	H	Me	H	Me	Me
O	CH_2	O	*i*-Pr	H	Me	H	Me	Me
O	CH_2	O	Ph	H	Me	H	Me	Me
O	CH_2	O	Me	H	H	Me	Me	Me
O	CH_2	O	*i*-Pr	H	H	Me	Me	Me
O	CH_2	O	Ph	H	H	Me	Me	Me
O	CH_2	O	Me	H	CH_2Ph	H	Me	Me
O	CH_2	O	*i*-Pr	H	CH_2Ph	H	Me	Me
O	CH_2	O	Ph	H	CH_2Ph	H	Me	Me

In a sub-embodiment, a structure of the formula (XX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide,

a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

R_1 and R_2, R_2 and R_3, R_3 and R_4, R_4 and R_5 and R_5 and R_6 can also each be comprised of one or two CR_7R_8 groups, connected by a tether, selected independently from groups that include CR_7R_8, $CR_7R_8CR_7R_8$, $CR_7{=}CR_8$, CR_7R_8O and $CR_7R_8NR_7$.

B and M are selected from the groups that include CR^7R^8, O, S or NR^7;

G is selected from the groups that include OR^7, NR^7R^8 or SR^7.

In another sub-embodiment, a structure of the formula (XX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R_1 and R_2, R_2 and R_3, R_3 and R_4, R_4 and R_5 and R_5 and R_6 can also each be comprised of one or two CR_7R_8 groups, connected by a tether, selected independently from groups that include CR_7R_8, $CR_7R_8CR_7R_8$, $CR_7{=}CR_8$, CR_7R_8O and $CR_7R_8NR_7$; and

$M = O$, $B = O$ and $G = OR^8$.

In another sub-embodiment, a structure of the formula (XX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

R_1 and R_2, R_2 and R_3, R_3 and R_4, R_4 and R_5 and R_5 and R_6 can also each be comprised of one or two CR_7R_8 groups, connected by a tether, selected independently from groups that include CR_7R_8, $CR_7R_8CR_7R_8$, $CR_7{=}CR_8$, CR_7R_8O and $CR_7R_8NR_7$.

$M = O$, $B = NR^8$ and $G = OR^8$.

In another sub-embodiment, a structure of the formula (XX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide,

a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$; and

M = O, B = CR^7R^8, and G = OR^8.

In another sub-embodiment, a structure of the formula (XX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S).

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$.

M = O, B = S and G = OR^8.

In another sub-embodiment, a structure of the formula (XX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR_7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$; and

M = O, B = O and G = NR^7R^8.

In another sub-embodiment, a structure of the formula (XX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

M = O, B = NR^8 and G = NR^7R^8.

In another sub-embodiment, a structure of the formula (XX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R_1 and R_2, R_2 and R_3, R_3 and R_4, R_4 and R_5 and R_5 and R_6 can also each be comprised of one or two CR_7R_8 groups, connected by a tether, selected independently from groups that include CR_7R_8, $CR_7R_8CR_7R_8$, $CR_7{=}CR_8$, CR_7R_8O and $CR_7R_8NR_7$;

M = O, B = CR^7R^8 and G = NR^7R^8.

In another sub-embodiment, a structure of the formula (XX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R_1 and R_2, R_2 and R_3, R_3 and R_4, R_4 and R_5 and R_5 and R_6 can also each be comprised of one or two CR_7R_8 groups, connected by a tether, selected independently from groups that include CR_7R_8, $CR_7R_8CR_7R_8$, $CR_7{=}CR_8$, CR_7R_8O and $CR_7R_8NR_7$;

M = O, B = S and G = NR^7R^8.

In another sub-embodiment, a structure of the formula (XX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl,

sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^6 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

M = CR^7R^8, B = O and G = OR^8.

In another sub-embodiment, a structure of the formula (XX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

M = CR^7R^8, B = NR^8 and G = OR^8.

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M = CR^7R^8, B = O and G = NR^7R^8.

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$M = CR^7R^8$, $B = CR^7R^8$ and $G = NR^7R^8$.

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sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

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M = S, B = NR^8 and G = NR^7R^8.

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M = S, B = S and G = NR^7R^8.

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In another sub-embodiment, a structure of the formula (XX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

M = NR^7, B = S. and G = OR^8.

In another sub-embodiment, a structure of the formula (XX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

M = NR^7, B = O and G = NR^7R^8.

In another sub-embodiment, a structure of the formula (XX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

M = NR^7, B = NR^8 and G = NR^7R^8.

In another sub-embodiment, a structure of the formula (XX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl,

sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

M = NR^7, B = CR^7R^8 and G = NR^7R^8.

In another sub-embodiment, a structure of the formula (XX) is given wherein the compound or its pharmaceutically acceptable salts or prodrug are defined as follows:

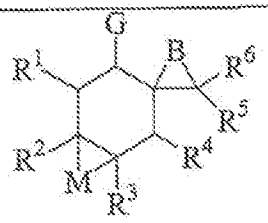
R^1 is selected independently from the groups that include hydrogen, alkyl, cycloalkyl, aryl, alkaryl, arylalkyl, heterocyclic, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1, R^2, R^3, R^4, R^5, R^6, R^7, R^8, R^9, R^{10}, R^{12}, R^{13}, R^{14}, R^{15}, R^{16}, R^{17},R^{18} and R^{19} are selected independently from the groups that include hydrogen, alkyl, alkenyl, alkynyl, cycloalkyl, cycloalkenyl, aryl, alkaryl, arylalkyl, heterocyclic, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, carboxylic acid, amide, nitro, cyano, azide, phosphonyl, phosphinyl, phosphoryl, phosphine, carbamate, ester, alkcarbonyl, carbonyl, halide, a residue of a natural or synthetic amino acid, or carbohydrate or XR^7 (X = O, NR^8 or S);

R^1 and R^2, R^2 and R^3, R^3 and R^4, R^4 and R^5 and R^5 and R^6 can also each be comprised of one or two CR^7R^8 groups, connected by a tether, selected independently from groups that include CR^7R^8, $CR^7R^8CR^7R^8$, $CR^7{=}CR^8$, CR^7R^8O and $CR^7R^8NR^7$;

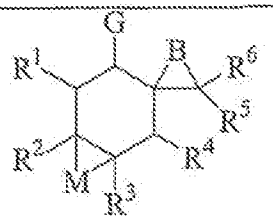
M = NR^7, B = S and G = NR^7R^8.

In a particular embodiment of the present invention, the compounds of the formula (XX) are the following species:



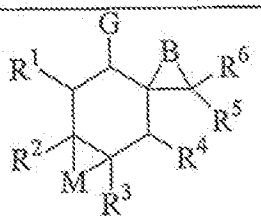
(XX)

G	B	M	R^1	R^2	R^3	R^4	R^5	R^6
OH	O	O	Me	H	H	H	Me	Me
OH	O	O	*i*-Pr	H	H	H	Me	Me
OH	O	O	Ph	H	H	H	Me	Me
OH	O	O	Me	Me	H	H	Me	Me
OH	O	O	*i*-Pr	Me	H	H	Me	Me
OH	O	O	Ph	Me	H	H	Me	Me
OH	O	O	Me	H	Me	H	Me	Me
OH	O	O	*i*-Pr	H	Me	H	Me	Me
OH	O	O	Ph	H	Me	H	Me	Me
OH	O	O	Me	H	H	Me	Me	Me
OH	O	O	*i*-Pr	H	H	Me	Me	Me
OH	O	O	Ph	H	H	Me	Me	Me
OH	O	O	Me	H	CH_2Ph	H	Me	Me
OH	O	O	*i*-Pr	H	CH_2Ph	H	Me	Me
OH	O	O	Ph	H	CH_2Ph	H	Me	Me
OH	CH_2	O	Me	H	H	H	Me	Me
OH	CH_2	O	*i*-Pr	H	H	H	Me	Me



(XX)

G	B	M	R^1	R^2	R^3	R^4	R^5	R^6
OH	CH_2	O	Ph	H	H	H	Me	Me
OH	CH_2	O	Me	Me	H	H	Me	Me
OH	CH_2	O	*i*-Pr	Me	H	H	Me	Me
OH	CH_2	O	Ph	Me	H	H	Me	Me
OH	CH_2	O	Me	H	Me	H	Me	Me
OH	CH_2	O	*i*-Pr	H	Me	H	Me	Me
OH	CH_2	O	Ph	H	Me	H	Me	Me
OH	CH_2	O	Me	H	H	Me	Me	Me
OH	CH_2	O	*i*-Pr	H	H	Me	Me	Me
OH	CH_2	O	Ph	H	H	Me	Me	Me
OH	CH_2	O	Me	H	CH_2Ph	H	Me	Me
OH	CH_2	O	*i*-Pr	H	CH_2Ph	H	Me	Me
OH	CH_2	O	Ph	H	CH_2Ph	H	Me	Me
OH	O	CH_2	Me	H	H	H	Me	Me
OH	O	CH_2	*i*-Pr	H	H	H	Me	Me
OH	O	CH_2	Ph	H	H	H	Me	Me
OH	O	CH_2	Me	Me	H	H	Me	Me
OH	O	CH_2	*i*-Pr	Me	H	H	Me	Me
OH	O	CH_2	Ph	Me	H	H	Me	Me



(XX)

G	B	M	R^1	R^2	R^3	R^4	R^5	R^6
OH	O	CH_2	Me	H	Me	H	Me	Me
OH	O	CH_2	*i*-Pr	H	Me	H	Me	Me
OH	O	CH_2	Ph	H	Me	H	Me	Me
OH	O	CH_2	Me	H	H	Me	Me	Me
OH	O	CH_2	*i*-Pr	H	H	Me	Me	Me
OH	O	CH_2	Ph	H	H	Me	Me	Me
OH	O	CH_2	Me	H	CH_2Ph	H	Me	Me
OH	O	CH_2	*i*-Pr	H	CH_2Ph	H	Me	Me
OH	O	CH_2	Ph	H	CH_2Ph	H	Me	Me

II. Definitions

It should be understood that the various possible stereoisomers of the groups mentioned above and herein are within the meaning of the individual terms and examples, unless otherwise specified. As an illustrative example, "1-methyl-butyl" exists in both the (R) and the (S) form, thus, both (R)-1-methyl-butyl and (S)-1-methyl-butyl is covered by the term "1-methyl-butyl," unless otherwise specified. Several biological compounds are designed by the (D) and the (L) form, rather than the (R) and the (S) form, respectively, based on the stereochemistry around the 4' carbon. As an another illustrative example, "glycine" exists in both the (D) and the (L) form; therefore, both (D)-glycine and (L)-glycine are covered by the term "glycine" unless otherwise specified.

As used herein, the term "isolated enantiomer" refers to a composition that includes at least approximately 95% to 100%, or more preferably, over 97% of a single enantiomer of that compound.

As used herein, the term "substantially free of" or "substantially in the absence of" refers to a composition that includes at least 85 or 90% by weight, preferably 95% to 98 % by weight, and even more preferably 99% to 100% by weight, of the designated enantiomer of that compound.

The term "independently" is used herein to indicate that the variable that is independently applied varies independently from application to application. Thus, in a compound such as R"XYR", wherein R" is "independently carbon or nitrogen," both R" can be carbon, both R" can be nitrogen, or one R" can be carbon and the other R" nitrogen.

The term alkyl, as used herein, unless otherwise specified, refers to a saturated straight, branched, or cyclic, primary, secondary, or tertiary hydrocarbon, typically of C_1 too C_{18} and specifically includes methyl, ethyl, propyl, isopropyl, butyl, isobutyl, t-butyl, pentyl, cyclopentyl, isopentyl, neopentyl, hexylisohexyl, cyclohexyl, cyclohexylmethyl, 3-methylpentyl, 2, 2-dimethylbutyl and 2,3-dimethylbutyl. The alkyl group can be optionally substituted with one or more moieties selected from the group consisting of alkyl, halo, haloalkyl, hydroxyl, carboxyl, acyl, acyloxy, amino, amido, carboxyl derivatives, alkylamino, dialkylamino, arylamino, alkoxy, aryloxy, nitro, cyano, thiol, imine, sulfonic acid, sulfate, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, ester, carboxylic acid, amide, phosphonyl, phosphinyl, phosphoryl, phosphine, thioester, thioether, acid halide, anhydride, oxime, hydrozine, carbamate, phosphonic acid, phosphate, phosphonate, or any other viable functional group that does not inhibit the pharmacological activity of this compound, either unprotected, or protected as necessary, as known to those skilled in the art, for example, as taught in Greene, *et al.*, Protective Groups in Organic Synthesis, John Wiley and Sons, Second Edition, 1991, hereby incorporated by reference.

The term lower alkyl, as used herein, and unless otherwise specified, refers to a C_1 to C_4 saturated straight, branched, or if appropriate, a cyclic (for example, cyclopropyl) alkyl group, including both substituted and unsubstituted forms.

The term alkylene or alkenyl refers to a saturated hydrocarbyldiyl radical of straight or branched configuration, including but not limited to those that have from one to

ten carbon atoms. Included within the scope of this term are methylene, 1,2-ethane-diyl, 1,1-ethane-diyl, 1,3-propane-diyl, 1,2-propane-diyl, 1,3-butane-diyl, 1,4-butane-diyl and the like. The alkylene group or other divalent moiety disclosed herein can be optionally substituted with one or more moieties selected from the group consisting of alkyl, halo, haloalkyl, hydroxyl, carboxyl, acyl, acyloxy, amino, amido, carboxyl derivatives, alkylamino, dialkylamino, arylamino, alkoxy, aryloxy, nitro, cyano, sulfonic acid, thiol, imine, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, ester, carboxylic acid, amide, phosphonyl, phosphinyl, phosphoryl, phosphine, thioester, thioether, acid halide, anhydride, oxime, hydroxine, carbamate, phosphonic acid, phosphonate, or any other viable functional group that does not inhibit the pharmacological activity of this compound, either unprotected, or protected as necessary, as known to those skilled in the art, for example, as taught in Greene, *et al.*, Protective Groups in Organic Synthesis, John Wiley and Sons, Second Edition, 1991, hereby incorporated by reference.

The term "protected" as used herein and unless otherwise defined refers to a group that is added to an oxygen, nitrogen, or phosphorus atom to prevent its further reaction or for other purposes. A wide variety of oxygen and nitrogen protecting groups are known to those skilled in the art or organic synthesis. Suitable protecting groups are described, for example, in Greene, *et al.*, "Protective Groups in Organic Synthesis," John Wiley and Sons, Second Edition, 1991, hereby incorporated by reference.

The term aryl, as used herein, and unless otherwise specified, refers to phenyl, biphenyl, or naphthyl, and preferably phenyl. The aryl group can be optionally substituted with one or more moieties selected from the group consisting of hydroxyl, amino, alkylamino, arylamino, alkoxy, aryloxy, halo, nitro, cyano, sulfonic acid, sulfate, phosphonic acid, phosphate or phosphonate, either unprotected, or protected as necessary, as known to those skilled in the art, for example, as taught in Greene, *et al.*, "Protective Groups in Organic Synthesis," John Wiley and Sons, Second Edition, 1991.

The term aralkyl, as used herein, and unless otherwise specified, refers to an aryl group as defined above linked to the molecule through an alkyl group as defined above. The term alkaryl or alkylaryl as used herein, and unless otherwise specified, refers to an alkyl group as defined above linked to the molecule through an aryl group as defined above. In each of these groups, the alkyl group can be optionally substituted as describe above and the aryl group can be optionally substituted with one or more moieties selected

from the group consisting of alkyl, halo, haloalkyl, hydroxyl, carboxyl, acyl, acyloxy, amino, amido, carboxyl derivatives, alkylamino, dialkylamino, arylamino, alkoxy, aryloxy, nitro, cyano, sulfonic acid, thiol, imine, sulfonyl, sulfanyl, sulfinyl, sulfamonyl, ester, carboxylic acid, amide, phosphonyl, phosphinyl, phosphoryl, phosphine, thioester, thioether, acid halide, anhydride, oxime, hydrozine, carbamate, phosphonic acid, phosphonate, or any other viable functional group that does not inhibit the pharmacological activity of this compound, either unprotected, or protected as necessary, as known to those skilled in the art, for example, as taught in Greene, *et al.*, Protective Groups in Organic Synthesis, John Wiley and Sons, Second Edition, 1991, hereby incorporated by reference. Specifically included within the scope of the term aryl are phenyl; naphthyl; phenylmethyl; phenylethyl; 3,4,5-trihydroxyphenyl; 3,4,5-trimethoxyphenyl; 3,4,5-triethoxyphenyl; 4-chlorophenyl; 4-methylphenyl; 3,5-di-tertiarybutyl- 4-hydroxyphenyl; 4-fluorophenyl; 4-chloro-1-naphthyl; 2-methyl-1-naphthylmethyl; 2-naphthylmethyl; 4-chlorophenylmethyl; 4-tertiarybutylphenyl; 4-tertiarybutylphenylmethyl and the like.

The term halo or halogen, as used herein includes chloro, bromo, iodo and fluoro.

The term heteroatom, as used herein, refers to oxygen, sulfur, nitrogen or phosphorus.

The term alkylamino or arylamino refers to an amino group that has one or two alkyl or aryl substituents, respectively.

The term alkoxy, as used herein, and unless otherwise specified, refers to a moiety of the structure -O-alkyl, wherein alkyl is as defined above.

The term acyl refers to moiety of the formula -C(O)R', wherein R' is alkyl; aryl, alkaryl, aralkyl, heteroaromatic, heterocyclic, alkoxyalkyl including methoxymethyl; arylalkyl including benzyl; aryloxyalkyl, such as phenoxymethyl; aryl including phenyl optionally substituted with halo groups C_1 to C_4 alkyl or C_1 to C_4 alkoxy or the residue of an amino acid.

As used herein, a leaving group means a functional group that is cleaved from the molecule to which it is attached under appropriate conditions.

The term heteroaryl or heteroaromatic, as used herein, refers to an aromatic that includes at least one sulfur, oxygen, nitrogen or phosphorus in the aromatic ring. The term